

ABSTRACT OF THE DISCLOSURE

A system and apparatus for photonic switching combines photonic add/drop multiplexing capabilities with photonic cross-connect switching capabilities. The photonic switch is coupled to a number of incoming fibers and to a number of outgoing fibers. Each incoming fiber is fed into a demultiplexer that demultiplexes the incoming optical signal into its component optical data streams. The demultiplexed optical data streams from each incoming fiber are fed into a corresponding drop-only fabric, which, for each demultiplexed optical data stream, either drops or passes the optical data stream. The passed optical data streams from the various drop-only fabrics are fed into a number of input ports of a photonic cross-connect switch. The photonic cross-connect switch switches each optical data stream from an input port to an output port. The signals from a number of output ports are combined to form an outgoing optical signal, which is sent over an outgoing fiber. New optical data streams can be added through either the photonic cross-connect switch or through combiners external to the photonic cross-connect switch.